BOOKS RECEIVED.

THE TELESCOPE. By THOMAS NOLAN, B. S. D. Van Nostrand, 23 Murray Street. New York, 1881. Price 50 cents.

This little handbook presents very briefly the principles involved in the construction of refracting and reflecting telescopes, illustrated with about thirty diagrams. For an amateur desirous of following Herschel's example of making his own telescope, this work will be found a practical guide. We notice the author gives the form of object glass suggestod by Messrs. Alvan Clark & Sons, the noted makers of astronomical object glasses. They say "many forms may be used, but from our experience, we have found that to *make the crown glass lens of equal curvature, and the flint glass lens nearly flat on the side next the eye,* is the most convenient, and *gives as good results as any other form.*

MICROSCOPES.

The *American Journal of Microscopy* for March is an excellent number full of interesting matter and two full pages of illustrations.

We notice Professor Phinn corrects a statement mentioned in Journal of R. M. S. that 80,000 to 100,000 diameter were within the power of his appliances. He now gives as the limit of amplification of a high angle objection, say, an object of one tenth, and a one eight eyepiece, 8,000 to 10,000 diameters. We notice in another part of the Journal that Professor J. Edwards Smith obtains 8,000 with the same-eye piece and a 1/6 object.

Dr. E. Cutler describes a flagellate infusorium called *Asthmatos Ciliaris,* which occurs in connection with one form of contageous cold coryza or influenza. These parasites may be easily detected in the early sneezing stage, the nose runs and the eyes water; they are located in the anterior nasal passages, on the mucus membrane of the conjunctiva of the eyes, and of the pharynx and larynx. Simply transfer a drop of the thin mucus to a slide, cover, then examine with a good 1-5th and 1 inch occular.

There appears to be confusion as to the classification of this parasite, and as the opportunity for studying it will probably be oftener than agreeable, we shall be glad to hear from any of our readers who throw light on the subject.

Dr. F. L. Bardeen considers that wax cells have been too hastily abandoned by their originator, Professor H. L. Smith, who fully described them in "SCIENCE." Dr. Bardeen says that if prepared as he suggests, they are the best cells for opaque mounting.

Dr. A. C. Stokes has an excellent paper on "Growing Slides," and treats the subject in a most exhaustive manner; as most of the contrivances can be made by the microscopist, this article will be of the greatest benefit to this class,

Dr. Smith Baker, in a paper on the "Microscopal uses of the Cat," offers a plea for the more universal use of this domestic animal in microscopical study.

In view of the advice offered by Professor Burt G. Wilder, in regard to the use of the cat by anatomists, and the increasing disposition of students to use the cat for such purposes, we fear that this genus will soon be at a premium.

MANURIAL EXPERIMENT WITH SUGAR BEETS. — Phosphoric acid, applied preferably in the spring, increased the yield of sugar most decidedly.—M. MARCKER.

OCCURRENCE OF VANILLA IN RAW SUGARS.—The authors have succeeded in isolating small quantities of vanilline from crude-sugar.—E. v. LIPPMAN and Prof. C. SCHEIBLER.

THE GLYCERINE BAROMETER.

Mr. James B. Gordon has published the following description of his glycerine barometer—which appears to have at least one advantage in being easily read off, as the usual tenth of an inch on the mercurial barometer is represented in the glycerine barometer by something more than an inch; thus the changes which take place are rendered obvious even to an unpracticed eye.

Our readers may have heard of Daniell's water barometer, which was destoyed in the fire at the Crystal Palace in 1866. Mr. Jordan constructed another, which has since continued in operation. In the course of his experiments on various fluids, he was led to try glycerine, which appears well adapted for the purpose. Its vapor has a very low tension at ordinary temperatures, and as its freezing-point is much below zero, it is, so far, excellently adapted for use in barometers. The mean coefficient of expansion by heat is, according to Professor Reinold, .000303 for a degree of Fahrenheit's scale, and a table has been computed on this basis for reducing the observations to 32° Fahr. Glycerine possessing the capability of absorbing moisture from the atmosphere, its surface in the cistern is covered by a layer of mineral oil, which has no effect whatever on the glycerine, and which does not evaporate at ordinary temperatures. At sea-level the pressure of the atmosphere supports a column of glycerine of a mean height of 27 ft., and accordingly the tube of the barometer is made some 29 ft. in length. It is formed of composition gas-pipe, ⅝ths of an inch in diameter, but the upper part, 4ft. or so in length, is of glass tube, having an internal diameter of 1in. The top end, instead of being sealed, is spread out into a cup-shape, having a small orifice plugged with a stopper of rubber. The cistern is of tinned copper 4in. deep and 10in. in diameter, and the air is allowed to press on the surface through a small hole leading into a chamber containing a filter of cotton wool. At the bottom of the cistern is a closed channel opening into the centre, and to this is attached a projecting vertical tube, to which the main tube is soldered. The object of this channel is apparently to provide a means of closing the tube by a screw-plug when refilling is necessary. The quantity of glycerine required for such an instrument is about a gallon, and this being warmed in a water-bath and tinted with rosaniline, sufficient is poured into the cistern to cover the orifice of the channel. The plug at the top end is then removed, and the tube completely filled by pouring the glycerine gently down one side. After allowing it to rest for some time, the air bubbles will be found collected at the top, when the tube is again filled up to the cup, and the stopper replaced. The screw-plug in the cistern being removed, the column will fall until balanced by the pressure of the atmosphere, and the vacuum is as perfect as it is possible to get it, the small quantity of glycerine remaining in the cup above the stopper hermetically sealing it. The glycerine barometer is therefore a simple and easily managed instrument; but it is not pretended that it can take the place of the standard mercurial instrument for precision. It is comparatively a new instrument, and its value as a piece of scientific apparatus has yet to be shown.

HYDROBROMIC ACID AS A REAGENT FOR COPPER.—A drop of the solution in question is placed in a watch-glass, a drop of hydrobromic acid is added and the mixture evaporated at a gentle heat. When it is reduced to the bulk of one drop a rose-red coloration appears, three or four times more intense than that produced by potassium ferrocyanide. In this manner 1-100th milligrm. copper may be detected.

DETECTION OF METHYLIC ALCOHOL IN VINIC ALCOHOL.—MM. Cazeneuve and Cotton propose as reagent a solution of potassium permanganate containing 1-10th per cent of the dry salt. The permanganate at ordinary temperatures is reduced slowly by vinic alcohol, but instantaneously by methylic alcohol. If to 10 c.c. of alcohol at 20° there is added 1 c.c. of the permanganate solution, twenty minutes are required before the liquid takes the yellow tint indicating complete reduction. If 10 c.c. of alcohol are used containing 1 c.c. of methylic alcohol the yellow tint is instantly obtained with potassium permanganate.